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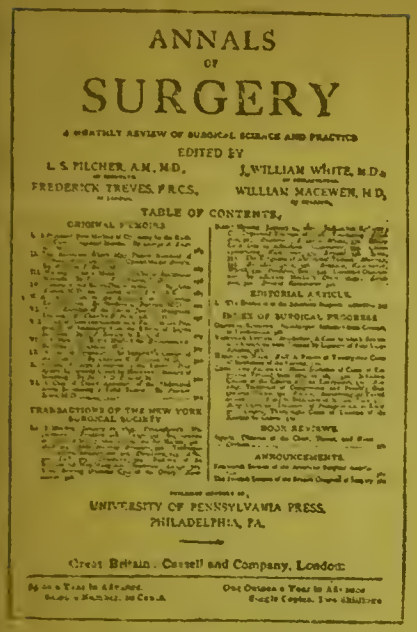

ANNALS
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SURGERY

A MONTHLY REVIEW OF SURGICAL SCIENCE AND PRACTICE

EDITED BY

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TWO CASES OF PRIMARY INTESTINAL RESECTION FOR GANGRENE OF BOWEL FROM STRANGULATION.

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By H. H. CLUTTON, F.R.C.S.,

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IT is important at the present time that all cases of intestinal resection from strangulated hernia should be recorded, whether they be successful or not. For the operation as a primary measure of treatment is on its trial. Some surgeons think that it will have its day, and that then we shall return to the old operation of artificial anus and an early secondary resection. He would be a rash man who made any dogmatic assertion on this point. In the mean time let us record our experiences, and time will show which is the better treatment. Operations long ago discarded are now again revived under modern conditions of asepticism, and with success. This is apparent throughout the whole range of surgery. Primary intestinal resection was done by Sir Astley Cooper, as has recently been shown by Sir Wm. MacCormac, in his Bradshaw Lecture.[1] But the operation had to be given up on account of the failure to obtain union and the invariable onset of peritonitis. At the present day union of the two ends is nearly always successfully accomplished, and peritonitis is not often directly caused by the operation. But still there is a high rate of mortality, chiefly from shock. The cases so far recorded of failure, and there should be many more if all were made public, show that the mortality is largely due to shock from the depressing nature of the original lesion and an operation which cannot be done in five minutes. Some of the cases recorded or alluded to at meetings show that the bowel has given

[1] Lancet, December 16, 1893, p. 1490.

way, some days after operation, at a distance from the site of reunion which has remained sound. This undoubtedly means that the bowel distended above the actual seat of strangulation was not sufficiently sound to maintain its vitality after its return to the abdominal cavity. A wider resection is the answer at once made to meet this danger. But those who have seen many of these cases will be aware that at least twelve inches may be in this doubtful condition and require resection, if this rule were always followed, when the part actually engaged in the constriction is perhaps not more than an inch or two. To deal with a mesentery twelve inches in length will materially add to the shock, and thereby increase the risks attendant upon the worst danger, after gangrene of bowel, with which we have to meet.

Other cases of primary resection have been followed by obstruction, either from kinking at the seat of reunion, or from stricture, by folding in too much of the intestinal wall in the application of the sutures. Failure of union after suturing in damaged bowel, paralysis, and peritonitis apart from ulceration, have also to be reckoned with. Altogether, the operation of primary resection for strangulated hernia in a patient suffering from collapse has to be considered as a highly dangerous procedure, only to be countenanced by its success in actual practice; and success must be shown to be obtained more frequently by primary resection in an equal and a large number of cases than after an artificial anus and a secondary resection.

But it is possible that a third course may be the best where extreme collapse contraindicates a primary resection,—namely, an artificial anus as immediate treatment to be followed by secondary resection, at an interval of a few days instead of some weeks or months.

Some may think this third course a distinction without a difference; but it is desirable that a very marked distinction should be drawn between what is ordinarily understood as a secondary resection and what is here proposed. A secondary resection is generally undertaken after some weeks' interval, when the bowel

beyond the area absolutely engaged in the constriction has had time to return to its normal condition. Meanwhile it may have contracted adhesions in a difficult position (see post-mortem Case I), the two ends no longer correspond in size, and the patient, perhaps, has not improved much, from the artificial anus being high up in the alimentary tract. The operation may thus be much more difficult and exhausting, whilst the patient is not sufficiently improved to pass easily through such measures as are necessary for success. If, on the other hand, secondary resection is undertaken in a few days after the first operation, adhesions will not be so troublesome, the doubtful area to excise will be defined, the two ends of bowel will more readily fit, and the patient better able than at the first operation to stand what is necessary to be done. In some cases it might be desirable to remove all the damaged bowel at the first operation,—*i.e.*, do a very wide excision, and having brought the two ends with the mesentery up into the wound complete the operation in a few days by reunion of the divided intestine.

Of the two cases now recorded, one died from exhaustion six days after operation, whilst the second recovered after three intestinal operations, and nearly three months' treatment.

Case I.—Miss E., aged twenty-eight, had had a hernia for four years, but had never worn a truss. She had always been able to return it herself when it came down till six days before her admission into St. Thomas's Hospital, on April 15, 1893. On this occasion, when she failed to return the rupture, she had the usual signs of strangulation. Her doctor on being called in attempted reduction, and thought that he had succeeded. She continued, however, to vomit as before, and had no action of bowels. On the third day reduction was again thought to have been effected, but the other symptoms continued. On admission she had stercoraceous vomiting and was in a very feeble condition. In the right groin and in the position of a femoral hernia was an inflammatory swelling tense, fluctuating, and resonant on percussion. The skin looked as if it would shortly give way from suppuration beneath.

Operation.—She was at once placed under the influence of an anæsthetic and an incision made. Stinking pus and gas were evacu-

ated, and a loop of small intestine found protruding from the femoral ring. Nearly the whole of this loop was gangrenous and the rest covered with adherent lymph. It was over three inches in length, and could not possibly have been reunited after excision and then passed through the femoral ring, as the puckered mesentery of so much intestine would have been too bulky, even if the opening had been enlarged by a free division of Poupart's ligament. The loop was therefore drawn down, and, after a ligature had been tied round at each end, the damaged bowel was excised. After thorough disinfection and removal of sac an incision was made through the linea alba and the two ligatured ends of bowel withdrawn on to the surface of the abdomen. The proximal end, which was much distended, was allowed to discharge its contents into a porringer. It was then clear that at least a foot more of this end of the intestine should be excised, if absolute safety was to be secured from subsequent perforation. This was felt to be impossible in the precarious condition of the patient, as the mesentery of so long a portion of bowel would of itself take a long time to treat; a wedge-shaped piece of mesentery corresponding to the absent bowel was therefore excised and the two ends of the intestine shortened as far as the temporary ligatures. The bowel was then reunited by two rows of silk sutures,—the first only for the mucous membrane, whilst the second was employed by the Lembert method for the peritoneal and muscular coats. A glass drainage-tube was inserted and the wounds closed in the ordinary manner. There was no sickness at any time after operation, and the temperature remained normal. The discharge from the drainage-tube was offensive the day after operation, and on the 20th became distinctly fæcal. At the same time there was an evacuation of some fluid per rectum. She died on the 21st, six days after the operation, without any abdominal distention or any sign of peritonitis, but from simple want of rallying power.

Post-mortem by the late Dr. Hadden. No peritonitis; suturing of bowel perfectly sound; intestine some distance above the line of suture presented a small round aperture from ulceration. This coil was deeply placed in the pelvis with a localized track leading to the surface where the drainage-tube had been placed. As the aperture did not involve more than a small portion of the calibre of the bowel, there is no reason why it should not have spontaneously closed.

So far the post-mortem record is satisfactory,—that the

return of damaged bowel did not cause peritonitis and the line of suturing had remained sound.

From the fact that she died at the end of six days from simple exhaustion and without post-mortem evidence of peritonitis, I think we may conclude that the removal of an additional foot of intestine would have caused her death more certainly and at an earlier date.

Case II was one in which primary resection was done after four days' strangulation, and at the end of seventeen days an artificial anus was made on account of obstruction from kinking. And, again, after the lapse of another eighteen days the artificial aperture was closed by a third operation.

Mrs. S., aged thirty-two, was sent to me by Dr. Creighton, and admitted into St. Thomas's Home on September 30, 1893. She had had a right femoral hernia for eight years, but had never worn a truss. The hernia came down on the 27th, with symptoms of strangulation, pain, vomiting, etc. Taxis was employed unsuccessfully by Dr. Creighton, but, although repeatedly urged, she declined all operative interference till the day of her admission into the Home. The femoral hernia was hard and tense, but without any external evidence of inflammation. Her temperature was 101.4°, and she was collapsed and very feeble. The operation was at once commenced, and the sac opened. Adherent omentum was found, and behind this a knuckle of small intestine, which was dark, but with a good polished surface. The narrow neck of hernia was incised, and the loop of small intestine gently pulled down. A rush of fæcal fluid was at once seen to escape from an ulcerated opening at the seat of constriction. There were two deep grooves, at the bottom of which the bowel wall was obviously very thin. After disinfection the omentum was removed and the ligatured stump returned. The opening into the abdomen was still further enlarged and more bowel withdrawn. The area involved by the two deep grooves, in one of which the opening existed, was then seen to be about one and a half inches in length. Beyond this the damaged bowel extended so far that it appeared to me to be unsafe to remove it in her collapsed condition; for if more than one and a half inches were removed, then at least a foot should also be removed, for there was no choice between these two extremes. I thought, also, that the one and a half inches could be excised, sutured, and returned

through the enlarged femoral ring, whereas the larger operation would involve the addition of an abdominal section, and the treatment of a large mass of mesentery.

The portion already described as one and a half inches in length was therefore excised close to the mesenteric attachment and the mesentery doubled on itself, and kept in position by a few silk sutures. The two ends of small intestine were united by a double row of silk sutures, one for the mucous membrane and the other for the peritoneal and muscular coats, after Lembert's method.

After the completion of the operation there was a good deal of difficulty in returning the bowel into the abdomen. It required a free division of Poupart's ligament before this could be satisfactorily accomplished, and even then there must have been a good deal of strain by pressure on the sutures. The sac was then excised, and a drainage-tube passed up just within the abdomen.

She vomited twice in the twelve hours succeeding operation; but not again till the sixteenth day, when other signs of obstruction made their appearance. She was fed by nutrient enemata for the first three days, but on October 4 was fed by the mouth, and subsequently took fluid nourishment freely. On the 5th the bowels acted after an enema, and continued to do so till the 16th. The temperature rose to 102° F. the day following the operation, and after this varied from 98° to 100° F. There was no abdominal distention till the 14th, when this symptom began to make its appearance. The bowels then also began to act less readily with enemata, and on the 16th she was sick. On the 17th she was again sick, and the abdomen was much more distended. She had had no action of the bowels for two days. I came, therefore, to the reluctant conclusion that she had obstruction from some cause connected with the seat of operation. The wound had given no trouble nor cause for anxiety, and at this time was discharging very little.

October 17, 3.30 P.M. The abdomen was opened in the mid-line, a little free fluid was found, but no pus, and no general adhesions. One distended coil of small intestine led directly down to the femoral ring, where it was firmly adherent. At this spot the bowel felt thickened, and the part beyond collapsed and empty. I feared, therefore, that my suturing had produced stenosis. The distended coil was therefore opened and the contents evacuated. On passing my finger down the inside of opened bowel I found that opposite the

femoral ring there was no real reduction from the normal calibre of the intestine, but that the apparent thickening was due to kinking. At any rate, if this was the spot sutured, there could not be, to my mind, enough contraction to cause symptoms. The opening that I had made in the bowel was attached to the abdominal incision in the ordinary way for an artificial anus as a temporary safety-valve.

After this operation she had no vomiting, nor did she suffer from much pain. The abdomen did not again become distended. But the temperature for the first five days varied between 100° and 103° F., and then became almost normal. There was a very large flow of fæcal fluid from the artificial opening, which rapidly made the skin very sore. She had had a very troublesome cough, which had been present from the first, but now became very much worse. This increased the difficulty of controlling the fæcal discharge, which I had hoped would gradually diminish as the opening contracted. Throughout November pad-strapping and bandage were fairly successful in controlling the discharge; but the cough sometimes defeated all our efforts. The bowels always acted by enema during the whole of the time.

December 4.—As the opening still remained, and she had had no further symptoms of obstruction, an operation was undertaken for the purpose of closing the fistulous aperture. In dissecting round the fistula, in the hope of obtaining enough material for the sutures without opening the peritoneal cavity, it soon became apparent that this would be impossible. The abdominal cavity was therefore quickly opened and the loop of bowel withdrawn. A double row of silk sutures was applied, one for the mucous membrane and the second for the peritoneal and muscular coats, after Lembert's method. A piece of omentum from the transverse colon was then wrapped round the line of sutures and attached to the mesentery. The omentum was not set free from its base, as it was felt that there were too many adhesions around to make this a matter of importance. One more adhesion, where all could not be separated, seemed to me rather an advantage, as the mass would be more likely to move as a whole.

She had no symptoms worthy of record after this,—the third operation. There was no vomiting and no distention; the temperature was scarcely raised above the normal standard; the cough rapidly improved, and the expectoration, which had before been profuse, soon became insignificant. She rapidly put on flesh, and was out of bed on December 21, and went home on December 30.

Since the above was written, Mr. H. W. Page has recorded[1] a successful case of secondary resection on the eleventh day. Even in this short time there was a marked difference in the two ends of the intestine. It is noticeable, also, that four inches of bowel were excised, the two ends united, and returned through the enlarged femoral ring, no abdominal section being made. Mr. Page was apparently anxious to do his secondary resection earlier than he actually did. This seems to me the direction in which we should now work, for I am sure many cases die from the prolonged operation necessary for a primary resection in a patient suffering from collapse. The ordinary secondary resection has such grave disadvantages, which have been alluded to above, that surgeons have at all hazards performed primary resection in cases where there was little hope of the patient surviving from the shock of operation. Let the second stage of the resection —namely, its reunion—be accomplished between the fifth and seventh day, and results may *possibly* show a marked improvement.

[1] Lancet, January 13, 1894, p. 90.